pretive and report modules, and supporting utilities. The assessment and rehabilitation system includes test modules for use in medical/clinical settings, occupational medicine, research, and forensic applications. The assessment and rehabilitation system also may be used in medical applications as an instrument for diagnoses, evaluation, and treatment strategies. In industrial settings, the assessment and rehabilitation system may be used as a fitness/readiness for work assessment. The system may also be configured for use in forensic mental competency, mental and emotional status examinations.

[0013] Clinical/Medical Applications. The assessment and rehabilitation system of the exemplary embodiment may be configured for medical applications which require diagnoses, evaluation, and treatment. Diagnostic applications of the system may involve neuropsychological assessments in clinical, occupational, and sports medicine. Neuropsychological assessments include mental and emotional evaluation in individuals with neurological disorders such as dementia, head injury, multiple sclerosis, Parkinson's disease, brain tumors, stroke, HIV, anoxia, hypoxia, altitude sickness, decompression sickness, Attention Deficit Hyperactivity Disorder, depression and other mood disorders, schizophrenia and other psychotic disorders, normal pressure hydrocephalus, hydrocephalus, Korsokoff's and other alcohol related disorders, Huntington's disease, hypertension, uremia, diabetes, metabolic disorders, neurotoxic insult, adverse effects of major surgery and other medical procedures, effects of therapeutic pharmacological interventions, drug dependence, and malingering of mental illness and neurological and neuropsychological disorders and impairments.

[0014] The system provides objective measurement and evaluation of treatment interventions, and assesses the effectiveness and efficacy of treatments that include surgery, pharmaceutical, and behavioral cognitive retraining/rehabilitation, and occupational therapy. In addition, the system may be used to monitor recovery from neurological and mental diseases, illnesses, and disorders, and fatigue.

[0015] Once diagnosis and treatment is completed, the system of the exemplary embodiment may be used for treatment of the subject. The system includes modules for rehabilitation and retraining of cognitive skills and abilities such as attention, memory, executive function that are commonly secondary to brain injury and neurological and metabolic disorders, major surgery, and neurotoxin exposures. The assessment and rehabilitation system also has modules for retraining fine motor skills and abilities that may be secondary to brain injuries and neurological impairment and disease. An example of the latter would be retraining eye-hand-psychomotor coordination for writing rehabilitation purposes.

[0016] Research Applications. The assessment and rehabilitation system may be configured for use in a number of research applications such as drug, fatigue and environmental research. Research applications include assessment of cognitive and psychomotor effects of pharmaceuticals, homeopathic compounds and treatments, and cancer chemotherapy and radiation. The system provides objective measurement of recovery from acute or chronic sleep deprivation, and transmeridian desynchronization or "jet lag". The system of the exemplary embodiment also is suitable for use in other environments such as microgravity spaceflight, high altitude hypobaric, underwater hyperbaric. cold and isolated Antarctic, high-g centrifuge and jet cockpit environments, and sports arenas and fields.

[0017] Occupational and Forensic Applications. The assessment and rehabilitation system of the exemplary embodiment of the present invention may be utilized to determine fitness and/or readiness for work. The immediate interpretive results provided by the system make it useful for fitness for duty assessments in military field operations, factories, hospitals, the transportation industry including railroad engines, airliner cockpits, and long-haul truck cabs and other workplaces. For example, a pilot may utilize the system in a cockpit to determine whether he or she is sufficiently alert to pilot a plane. The system may also be used in accident investigations by employing the modules of the system that are designed for detection of malingering and forensic mental health and neuropsychological investigations. For example, the system may be used in an investigation of fainting and memory problems following a motor vehicle accident. The system further includes modules to determine emotional and mental status in cases where competency to stand trial is in question.

[0018] The exemplary embodiment of the assessment and rehabilitation system is modular and configurable. The system utilizes a number of software modules including the executive program, a registration module, test modules, interpretive modules, report modules, and supporting utilities modules. As discussed briefly above, the test modules may be configured to form any number of test batteries. The test and rehabilitation system collects detailed data on test performance, and utilizes the detailed data to provide immediate Cognitive Status Reports when a test battery is completed. The system also is useful for research with nonhuman primates.

[0019] The executive program of the exemplary embodiment controls all critical system functions of the system including test administration, data collection, system security, data encryption, access to restricted system features, and communication with a host computer using radio frequency, serial, USB, IR, or dial-up modem. The executive program further permits recording of notes before and after test administration and allows responses to be recorded using a stylus, response buttons, or voice recognition modalities.

[0020] A subject registration module permits secure use of the same test and rehabilitation system by multiple subjects through the use of a Personal Identification Number (PIN) system. For example, a system that is loaded onto a PDA can be available to a workplace employee group to determine whether each of the employees are fit for a particular work assignment. Each employee may use the system utilizing his or her PIN, and the test results are associated with a particular employee each time he or she utilizes the system. The PIN prevents accidental or deliberate manipulations of test results associated with a particular employee. In addition to the immediate report received by the employee, data for the employee is collected over time to evaluate the test results of each employee, as well as the employee group.

[0021] The assessment and rehabilitation system of the exemplary embodiment utilizes independent test modules similar to those found in the Automated Neuropsychological Assessment Metrics (ANAM) system and in general mental status examinations. The test modules of the exemplary embodiment are designed to allow specified test options to be modified. For example, the number and spacing of stimulus presentations, the stimulus durations, the task difficulty, etc., may be customized for a particular application. Test modules of the assessment and rehabilitation system include sleep/